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Ugol', No 7, 1953

COMBATING SUDDEN EJECTIONS OF COAL AND GAS IN USSR COAL MINES

CONTRIBUTIONS OF SCIENTIFIC INSTITUTES

A. A. Skochinskiy Ugol', No 7, Jun 53

The first sudden ejection of coal and gas in a coal mine in the USSR occurred in 1906 in the Donbass, in the mine which is now called mine No 11 imeni Shvernik. Later, similar phenomena occurred in other regions of the Donbass, particularly in mines of the central region (south wing of main anticline of the basin), and also in Yegorshino (Urals), in Suchan (Far East), and in Kemerovskiy Rayon of the Kuzbass.

In 1952, the following institutes were asked to work out the problems connected with the sudden ejections of coal and gas in mines: the Institute of Mining, the Geophysics Institute, the Institute of Geological Sciences, and the Institute of Fuel Deposits of the Academy of Sciences USSR, as well as the State Makeyevka Scientific Research Institute for Safety in the Mining Industry (MakNII), the Eastern Scientific Research Institute for Safety (VostNII), the All-Union Scientific Research Coal Institute (VUGI), the All-Union Scientific Research Surveying Institute (VNIMI), and the State Planning and Designing Experimental Institute of Machine Building of the Ministry of the Coal Industry.

The following institutes also participated in working out specific problems: the Institute of Mechanics of the Academy of Sciences USSR, the Institute of Mining of the Academy of Sciences Ukrainian SSR, the Dnepropetrovsk Mining Institute of the Ministry of Culture USSR, and others.

Research and experimental work were conducted in 15 mines of the Donbass and in eight mines of other basins.

The measures carried out in 1952 to combat sudden ejections of coal and gas, mainly in the central area of the Donbass, plus the regular introduction of known and newly proposed safety measures, instruction of workers, and the study of sudden ejections of coal and gas by scientific research institutes in laboratories and directly in the mines were all reflected in the decrease in

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frequency and intensity of the ejections of coal and gas and the decrease in cases of traumatism among miners in mines most subject to sudden ejections of coal and gas in this region of the Donbass. Mines of the Artemugol' Combine can be taken as an example. Here, although the number of mine coal seams prone to sudden ejections of coal and gas increased from 40 in 1951 to 49 in 1952, and the increase in coal output from them in the same period was 14 percent, the number of ejections decreased from 75 in 1951 to 43 in 1952; the 1952 figure included 19 cases artificially caused by blasting. Furthermore, in 1952, the intensity of the ejections (judged by the amount of coal ejected) was only half that of 1951.

STUDY OF WARNING SIGNS PRECEDING EJECTIONS

R. M. Krichevskiy, N. R. Bel'skaya Ugol', No 7, Jul 53

In 1952, the Makeyevkn Scientific Research Institute made a study of all the sudden ejections of coal and gas that had occurred in the Donbass from 1946 to date. Particular attention was paid to warning signs, which may be either audible or inaudible. Audible warnings are percussions, noises, or rumblings in the solid mass. Inaudible warnings are crumbling of the coal, changes in the toughness of the coal, a scaling off of coal particles, protrusion of the coal, increases in the amount of gas liberated, changes in the thickness of the seam, changes in interstratification, an increase in the pressure on the props, changes in the color and luster of the coal, and formation of clouds of dust.

Ten mines located in various areas and working a number of different coal seams were studied. In these mines 230 sudden ejections of coal and gas occurred during the period of study. Most of these ejections were preceded by audible or inaudible warpings or a combination of both. In only 35 cases were no warnings noted.

The following table gives the names and locations of mines studied, the names of the coal seams which they were working, the number of ejections which occurred and percentage figures for audible and inaudible warnings, for combinations of the two, and for cases where no warnings were noted.



			Warning Signs (%) Combination					
Mine	Seam Worked	Number of Ejections	Audible	of Audible		No Warnings		
MILLO	HOLKER	Pleccions	Audible	and Inaudible	Inaudible	Noted		
			Central	Region				
Yunkom	Aleksand- rovskiy	5		20	40	40		
	Rudnyy	16	6	19	կկ	31		
No 1-2	Tolstyy	34	35	32	15	18		
Krasnyy	Mazur	18	35 6	50	33	11		
Oktyabr'	Andreyev-	- <u>8</u>	37	50				
	skiy	Ü	21	90		13		
Krasnyy	Andreyev-	7	28	29	29	14		
Profin-	skiy			-/	-,	17		
tern	Burakovka	6		67		33		
Imeni	Dvoynoy	6	34 25	33		33		
Karl	Devyatka	8	25	38	25	īž		
Marks	Mazur	8	63 .	12	13	12		
No 8 imeni	Kutsyy	2 2 ′	, 5	40	50	5		
Stalin								
Imeni Kalinin	Izvest- nyachka	6	83			17		
No 1-3 Koche- garka	Devyatka	8	13	25	25	37		
			Stalino-	Makeyevka				
No 17-17- bis	Smolyanin- ovskiy	38	53	29	8	10		

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	Seam Worked	Number of Ejections	Warning Signs (4)					STA
Mine			Auditie	of Audible and Inaudible		No Warnings Noted		
			Chistys	kevo	*** ****			
No 14-14- bis	Fominskiy	5	20	20	60			
			Seleznevskiy	Rayon				
No 10 imeni	I Podal- maznyy	9	11	22	67	~-		
Artem	II Kemen-	18	6	22	<u>ē</u> 1	11		
	III Kamen- skiy	8		25	63	12		
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	No 14-14- bis	No 14-14- Fominskiy bis No 10 I Podal- imeni maznyy Artem II Kemen- skiy III Kamen-	Mine Worked Ejections No 14-14- Fominskiy 5 bis No 10 I Podal- 9 imeni maznyy Artem II Kemen- 18 skiy III Kamen- 8	Mine Worked Ejections Audition No 14-14-bis Fominskiy 5 20 Seleznevskiy No 10 I Podal-imeni maznyy 9 11 Artem II Kamen- 18 6 skiy 1II Kamen- 8	No 10	No 10	No 10	No label